



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.    |
|--|-------------|----------------------|---------------------|---------------------|
| 09/955,171   | 09/19/2001  | Seizou Miyazaki      | Q66275              | 9417                |
| 7590   | 07/13/2004  |                      | EXAMINER            |                     |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC<br>2100 Pennsylvania Avenue, N.W.<br>Washington, DC 20037-3202 |             |                      |                     | SMITH, JULIE KNECHT |
|  |             | ART UNIT             | PAPER NUMBER        | 3682                |

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                 |
|------------------------------|-----------------|-----------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)    |
|                              | 09/955,171      | MIYAZAKI ET AL. |
|                              | Examiner        | Art Unit        |
|                              | Julie K Smith   | 3682            |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12 March 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 4-16 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 5-7, 12 is/are allowed.  
 6) Claim(s) 1,4,8-11,13,14 and 16 is/are rejected.  
 7) Claim(s) 15 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____.<br><br>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Mineta et al. (5,047,677). Mineta et al. disclose a bearing assembly comprising a housing (6), a shaft (1), a pair of roller bearings (4,8), wherein the shaft has a reduced diameter portion (see fig. 1) having an outer diameter smaller than the inner diameter of an inner ring and a width which is larger than an axial width of the raceway, such that inner circumferential surfaces located at distal ends of said inner ring are interference fit onto the shaft and an intermediate portion of said inner ring is clearance fitted to the shaft.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mineta et al. in view of JP 9-88966 (figure 13). Mineta et al. disclose a bearing assembly fastened to a shaft

by press fitting and adhesion, including a coned disk spring (5) as claimed, but lacking a sealing plate. Figure 13 of the Japanese reference discloses a bearing unit comprising a housing (15), a shaft (2), and pair of rolling bearings (16a,b), and plastic sealing plates (7) located at both ends of said respective outer rings of said pairs of rolling bearings, said sealing plates including stepped parts axially formed on said sealing plates, said spring seat further defining a retainer interference avoiding clearance for avoiding an interference with the retainer and a labyrinth between said spring seat and the shaft.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the bearing assembly of Mineta et al. with sealing plates, as taught by the Japanese reference, so as to prevent lubricant from leaking out of the bearing and keep dust from entering the bearing, increasing the friction created by the rotation, thus reducing the life of the bearing.

5. Claims 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mineta et al. as applied to claims 1 and 4 above. Mineta et al. discloses a clearance gap located between the shaft and an outer surface of an inner ring, however, Mineta et al. does not disclose the amount of clearance or run-out provided for the bearing assembly.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to minimize the clearance and run-out of the bearing assembly, as it is old and well known in the art that these specification must be minimized in order to reduce vibration and increase the efficiency of a bearing.

Further, it would have been obvious to one of ordinary skill in the art to apply and adhesive to the shaft so as to secure the bearings to the shaft, as using an adhesive to secure two objects is old and well-known.

*Allowable Subject Matter*

6. Claims 5, 6, 7 and 12 are allowed.
7. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Response to Arguments*

8. Applicant's arguments filed 3/12/04 regarding claims 1, 4, 8-11 and 16 have been fully considered but they are not persuasive.

Regarding claims 1 and 4, Applicant argues that Mineta et al. does not disclose the center portion of the reduced diameter part of the shaft being located at an intersection point of a line connecting ball contact points on the inner and outer rings. However, Mineta et al. discloses multiple contact points on both rings, therefore, a line connecting two of those points would intersect with the center of the reduced diameter portion.

Regarding claims 12, 13 and 16, Applicant argues that the claimed dimensions would not have been obvious. However, it is the opinion of the examiner that providing a certain amount of clearance for assembly, but not enough clearance for increased vibrations is obvious in the bearing art as it is the goal of bearing design to reduce vibrations and noise within bearings.

Applicant should provide evidence of non-obviousness and unexpected results obtained from the claimed dimensions.

*Conclusion*

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie K Smith whose telephone number is 703-305-3948. The examiner can normally be reached on Monday-Friday, 8-5:30, (Every other Friday off).

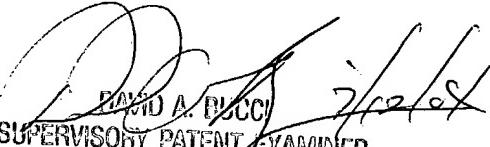
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on 703-308-3668. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3682

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JKS  
Jks

July 9, 2004



DAVID A. RICCI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600